

H. Grönvold del. et lith.

Mintern Bros. imp.

SIMIA VELLEROSUS (GRAY)
(*very old male*)

antennæ rather short and robust, black, the lower three joints fulvous, the second and third joints small, equal, the terminal six joints rather strongly widened, but longer than broad; thorax scarcely twice as broad as long, the sides nearly straight, obliquely angulate before the middle, very narrowly margined, basal margin oblique at the sides, rather strongly produced towards the scutellum, preceded by a shallow transverse sulcus which is bounded at the sides by a deep perpendicular groove, the surface rather convex, somewhat closely and strongly punctured; elytra with a shallow depression below the base, the shoulders rather prominent and smooth, the surface strongly and regularly punctate-striate, the interstices impunctate and flat; under side and legs black, base of tibiae and the tarsi more or less fulvous, prosternum narrowly elongate; with a longitudinal shallow sulcus.

Hab. Santa Catarina, Brazil.

The short, ovate shape of this species, short and rather robust antennæ, and the produced basal margin of the thorax at the middle agree best with the species at present placed in *Hippuriphila* instead of *Crepidodera* proper; four specimens are contained in my collection.

3. Notes on Anthropoid Apes.

By the Hon. WALTER ROTHSCHILD, Ph.D., F.Z.S.

[Received December 13, 1904.]

(Plate XXIV.* and Text-figures 99-117.)

Although, from the earliest times, beginning with Hanno's *Gorilla*, we find the writings of observers of nature filled with accounts of hairy wild men, and, in later days, many descriptions by zoologists of anthropoid apes, it was only after the appearance of Du Chaillu's book that universal attention was turned to these creatures.

Prior to 1870, several so-called species both of *Gorilla*, *Anthropopithecus*, and *Simia* auct. had been established, but until lately the majority of zoologists maintained that there was only one rather variable species each of Gorilla, Chimpanzee, and Orang-Outan. Professor Matschie's articles on the genus *Gorilla* (Sitzungsb. Ges. naturf. Freunde, 1903, pp. 253-259, and 1904, pp. 45-53) and his articles on the species and races of Chimpanzee (Sitzungsb. Ges. naturf. Fr. 1900, pp. 77-85, and 1904, pp. 55-69) have, however, once more aroused the greatest interest in the question of the true status of our knowledge of the anthropoid apes. In the first place, Professor Matschie insists, and, I believe, rightly, that the Gibbons (*Hylobates*) should form a separate

* For explanation of the Plate, see p. 440.

family—Hylobatidæ—and not be united with the great man-like apes. Although I propose to deal mainly with the Chimpanzees, I must allude to the genera *Gorilla* and *Pongo*, as I differ slightly from Professor Matschie.

In the first place, Professor Matschie himself gives only

TABLE of Comparative Measurements
of the Skulls of *Gorilla gorilla* and *G. gorilla matschiei*.

<i>Hinder surface of Head:</i>		
Greatest breadth at the Mastoid processes.....	144, 147, 155, 162 mm.	170 mm.
Breadth above the Mastoid processes	116, 120, 121, 123 mm.	163 mm.
Length from centre of Crista lambdoidea to basal edge of Foramen magnum	90, 100, 101, 103 mm.	109 mm.
<i>Foramen magnum:</i>		
Length	30, 32, 32, 34 mm.	40 mm.
Breadth	26, 28, 29, 30 mm.	35 mm.
Breadth on outside of Occipital condyles	45, 45, 51, 51 mm.	59 mm.
<i>Basioccipital:</i>		
Length from front edge of Foramen magnum	45, 45, 46, 49 mm.	35 mm.
<i>Occipital condyles:</i>		
Breadth at base	31, 32, 35, 38, 39 mm.	40 mm.
Breadth at anterior edge	23, 24, 29, 30 mm.	20 mm.
<i>Vomer:</i>		
Length	18, 19, 19, 23 mm.	19 mm.
Breadth	16, 17, 18, 19 mm.	10 mm.
<i>Basisphenoid:</i>		
Width at Foramen rotundum...	58, 58, 58, 59 mm.	62 mm.
Width at apex of Petrous portions of Temporal	32, 33, 35, 35 mm.	30 mm.
<i>Pterygoid processes of Sphenoid:</i>		
Length	64, 65, 68, 69 mm.	51 mm.
Breadth, singly	17, 18, 18, 19 mm.	24 mm.
Breadth across	60, 60, 60, 62 mm.	79 mm.
<i>Articular condyle of Lower Jaw:</i>		
Width.....	32, 34, 36, 36 mm.	42 mm.
<i>Coronoid process:</i>		
Greatest width	26, 30, 30, 34 mm.	21 mm.
Width between Coronoid process and Articular condyle ..	34, 34, 34, 41 mm.	21 mm.
Width from outside of Coronoid process to outside of Articular condyle	70, 73, 75, 79 mm.	56 mm.
<i>Nasals:</i>		
Length	38, 40, 41, 42 mm.	45 mm.
Width	28, 29, 33, 36 mm.	29 mm.
<i>Premaxilla:</i>		
Length	31, 31, 34, 36 mm.	39 mm.
Breadth across the canines.....	55, 70, 71, 73 mm.	90 mm.
<i>Zygoma:</i>		
Breadth at molar portion	30, 32, 32, 38 mm.	43 mm.
Breadth at narrowest part	16, 16, 17, 17 mm.	16 mm.
Length of skull front of <i>Arcus superciliaris</i> to front of Pre-maxilla	145, 146, 150, 153 mm.	160 mm.

doubtful characters, from lack of material, for *Gorilla castaneiceps* of Slack. The latter author gives as one of the principal characters (if not the principal) of his species, the red crown; now I have seen a good many Gaboon and Ogowe Gorillas, and I have found the red colour so variable that I am forced to regard *Gorilla castaneiceps* merely as a casual aberration of *Gorilla gorilla*. The cranial characters, as given by Matschie, appear to me also very uncertain. On the other hand, the *Gorilla manyema* of Alix and Bouvier I believe to be a very large ape of the group of *Simia vellerosus* Gray, and not a Gorilla at all, although Professor Matschie places it as a synonym of *Gorilla castaneiceps*. While I consider *G. castaneiceps* to be an aberration only of *G. gorilla*, I think Professor Matschie was rather bold to unite all South Camaroons Gorillas with the typical Gaboon *G. gorilla*. The Camaroons specimens I have seen appear to me to have shorter and stouter limb-bones, much longer hair, and the skulls show as a rule, though not always, a higher *crista sagittalis*. The facial portion is also shorter than in *G. gorilla*. These characters are more or less given by Matschie as probable points of distinction between *G. castaneiceps* and *G. gorilla*, but Slack did not found his species on these characters. Professor Matschie has separated the North Camaroons form of Gorilla as *G. diehli* on the evidence of eight skulls, all of which have the *planum nuchale* much wider than high. I am inclined to think that the N. and S. Camaroons Gorillas are merely geographical races of the Gaboon and Ogowe *Gorilla gorilla*, while, owing to the presence of full beard and the skull having certain very peculiar differences, the Gorilla from Kirunga, in German East Africa, ought to be upheld as a species, at least till we can examine fuller material. I propose to call the S. Camaroons race *Gorilla gorilla matschiei*, subsp. nov. Hair longer than in *Gorilla gorilla*, whole back and fore part of legs much greyer, limbs much shorter and stouter; crest of skull generally higher and rising closer to the *arcus superciliaris*; skull generally shorter: female much greyer.

From the foregoing particulars it will be seen that *Gorilla gorilla* and *G. gorilla matschiei* differ widely in the proportions of their skulls. (I have compared five fully adult males of equal size, all much above the average size.) The most striking differences are certainly in the shape of the *hinder surface of head* and the basioccipital bone, as well as the very widely different portion of the lower jaw comprising the coronoid process and the articular condyle. I have compared numerous other Gorillas' skulls—in all 27 ♂ and ♀, adult and young—in my possession, both from the Gaboon and the Camaroons, but they are all more or less imperfect or less adult than the five compared, so that the measurements could only have been partially given, therefore I did not think it advisable to quote them in this paper.

The casts of the type skulls ♂ ♀ of *Gorilla diehli* Matschie agree perfectly with two skulls wanting the lower jaws which I

possess, and which were brought back by Mr. G. L. Bates from the Camaroons, they being native killed, while the cast of *G. beringeri* Matschie shows differences from all skulls known to me.

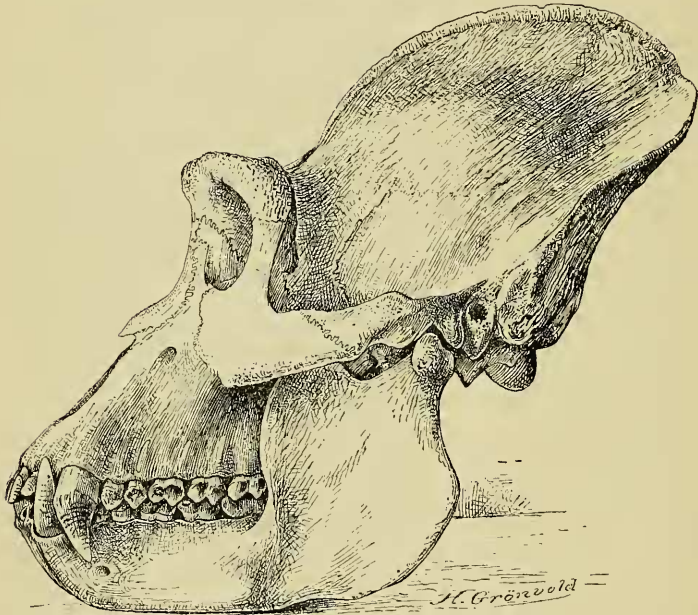
According to this classification, the species and subspecies of *Gorilla* would stand as follows:—

GORILLA GORILLA (Savage & Wyman). (Text-figs. 99 & 100.)

Boston Journal of Natural History, vol. v. p. 419 (1847).

Synonyms: *Gorilla gorilla* Is. Geoffr., 1852. *Troglodytes savagei* Owen, 1848. *Pithecus gesilla* Blainv., 1859. *Satyirus adrotes* Mayr, 1856. *Chimpanza gorilla* Haime.

Text-fig. 99.



Skull of *Gorilla gorilla* (Savage & Wyman). (Side view.)

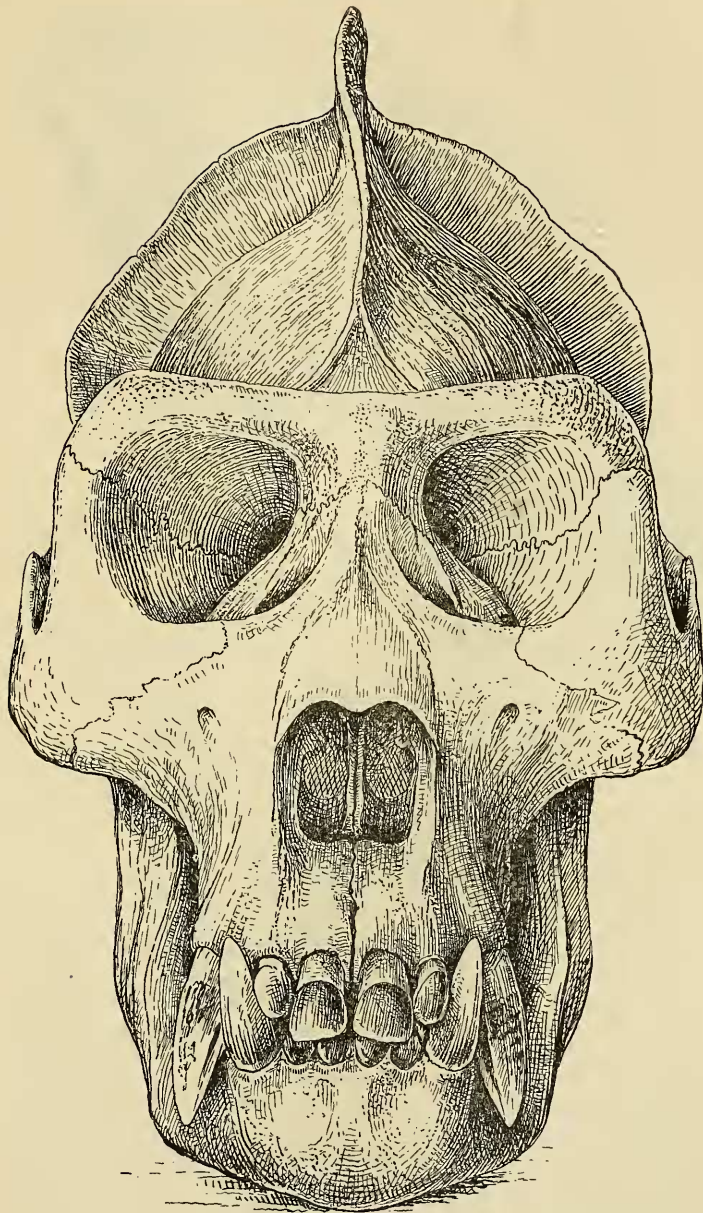
Aberration: *castaneiceps* Slack Proc. Acad. Nat. Sci. Philadelphia, pp. 159–160 (1862).

Habitat. Gaboon and Ogowe Region.

GORILLA GORILLA MATSCHIEI Rothsch. *antea*, p. 415. (Text-figs. 101 & 102, pp. 418, 419.)

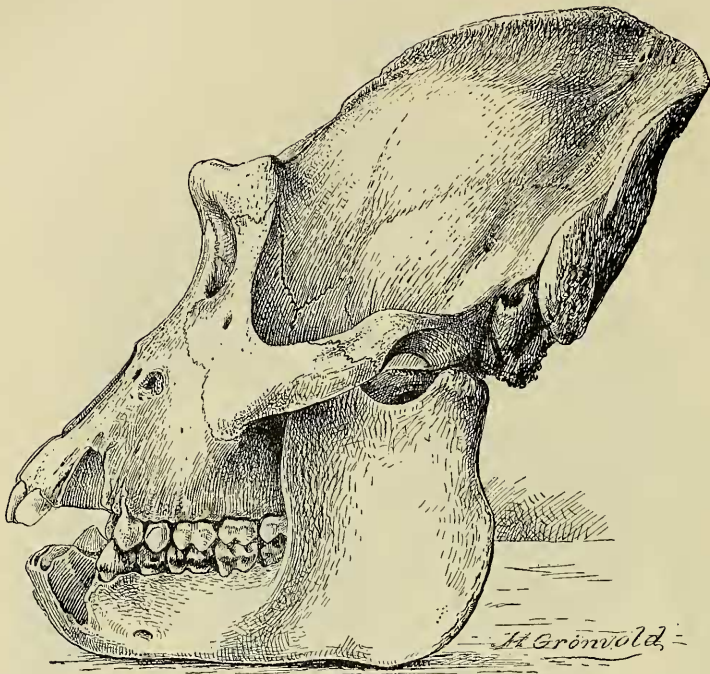
Habitat. Southern Camaroons.

Text-fig. 100.



Skull of *Gorilla gorilla* (Savage & Wyman). (Front view.)
PROC. ZOOLOG. SOC.—1904, VOL. II, NO. XXVII. 27

Text-fig. 101.

Skull of *Gorilla gorilla matschiei* Rothsch. (Side view.)

GORILLA GORILLA DIEHLI Matschie. (Text-fig. 103, p. 420.)

Sitzungsber. Ges. naturf. Freunde Berlin, 1904, p. 52.

Habitat. Northern Camaroons.

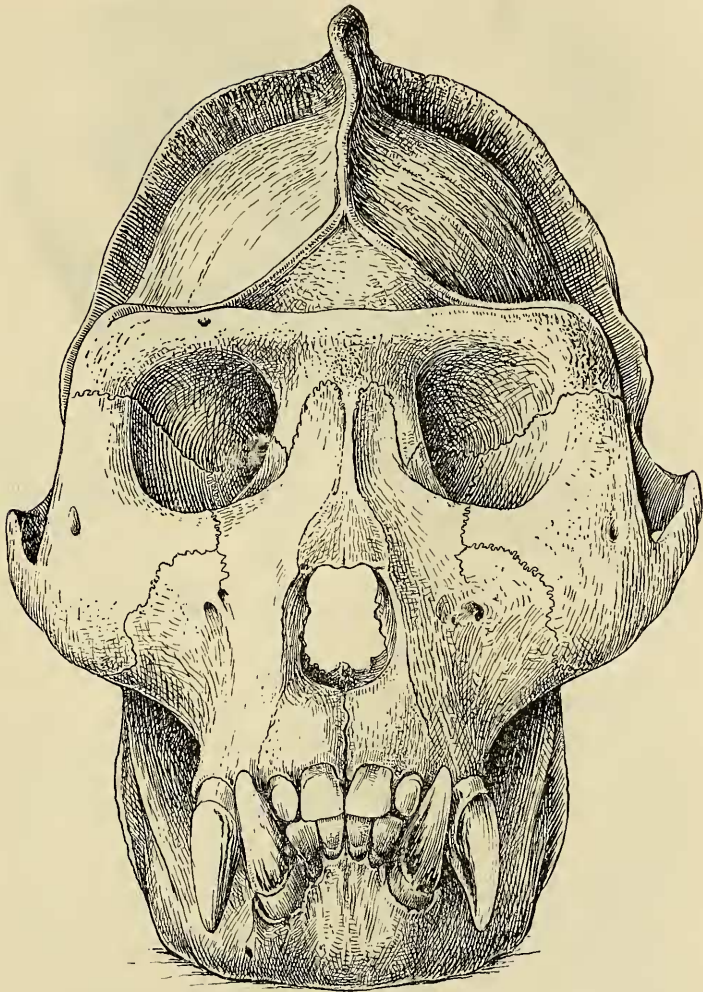
GORILLA BERINGERI Matschie. (Text-fig. 104, p. 421.)

Sitzungsber. Ges. naturf. Freunde Berlin, 1903, pp. 253-259.

Habitat. Kirunga, Ya Sabinyo Volcano, German East Africa.

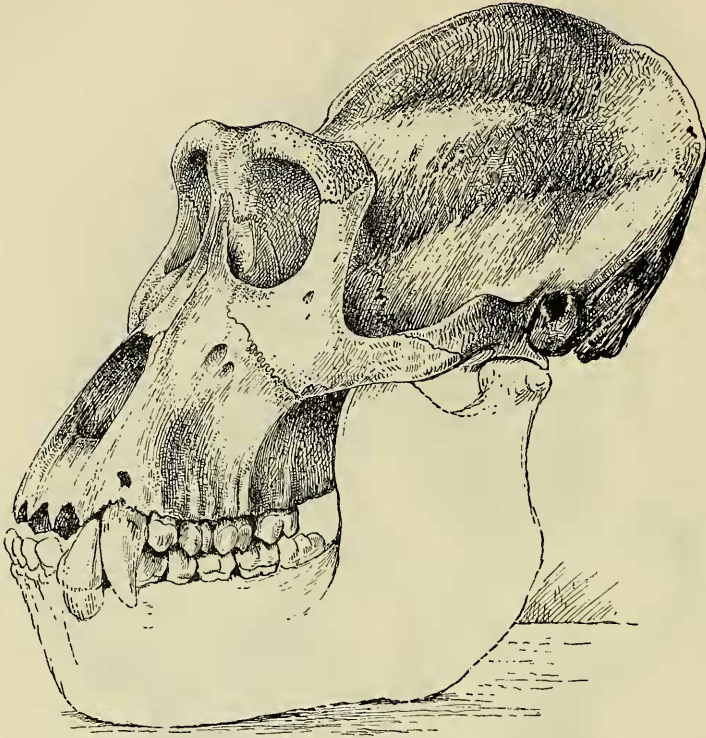
The genus and species of Chimpanzees now must be considered, and the first and most vexed question is that of the correct nomenclature. In common with Mr. Oldfield Thomas and most of the continental and American zoologists, I adopt, as the starting-point, Linnaeus's tenth edition of the 'Systema Naturæ' (1758). This being the case, I must now go into the changes it necessitates. In the first place, *Anthropopithecus* Blainville, 1838, must sink, as we find by the help of Palmer & Merriam's 'Index Generum Mammalium,' p. 109, that there are the following generic names older than *Anthropopithecus*, viz.:—*Troglodytes* Geoffroy, 1812; *Pan* Oken, 1816; and *Theranthropus* Brookes, 1828. *Troglodytes* was used as a name for the Wren in 1806 by Vieillot, while

Text-fig. 102.

Skull of *Gorilla gorilla matschiei* Rothsch. (Front view.)

Mimetes of Leach, 1820, another name for the Chimpanzee, was also preoccupied. I, therefore, who, in opposition to Professor Matschie, consider Oken's names applicable, would have had to accept *Pan* as the generic name of the Chimpanzee, as do many American writers, but for the fact that a still older name exists. Linnæus describes as the first species of his genus *Simia* in the

Text-fig. 103.

Skull of *Gorilla gorilla diehli* Matschie. (In Tring Museum.)

'Systema Naturæ,' i. p. 25 (ed. x. 1758) an anthropoid ape as follows:—

"*Satyrus*. 1. *S. ecaudata* subtus nuda. Syst. Nat. vi. p. 3.

Satyrus indicus Tulp. obs. III c. 56.

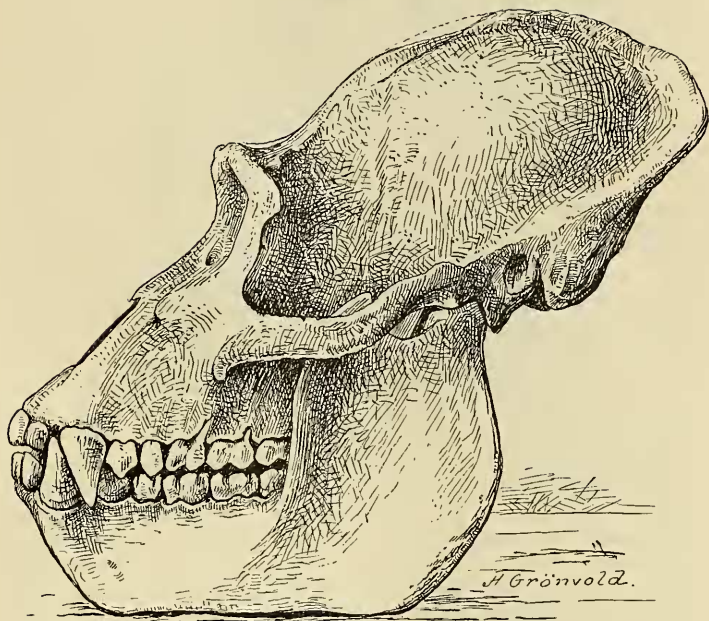
Habitat in Africa. Asia.

Magnitudine pueri sexennis. Dorsum erinibus nigris hirsutum; subtus s. antice undique glaber."

Tulp described and figured an ape which was brought from West Africa and presented to Prince Frederick Henry of Orange, and which lived some years in Europe.

Linnaeus copied Tulp's description almost word for word, and, as quoted above, expressly states that the *S. satyrus* was black on the back. It was only in his twelfth edition (1766) that Linnaeus calls the Orang-Outan *Simia satyrus*, and says it is red-haired, but he had already, in the 'Amœnitates Academice,' vi. p. 69 (1763), named the red-haired animal *Simia pygmaeus*. Not only,

Text-fig. 104.

Skull of *Gorilla beringeri* Matschie.

however, can we prove that Linnaeus's *Simia satyrus* is really a Chimpanzee, but we can even distinguish the exact race to which the name applies, for Tulp's description and figure show an ape the hair of which is not parted in the centre of the head, and with a short thick beard clothing the cheeks and leaving the chin bare. These characteristics are found in the Chimpanzees from the coast-lands of the South Camaroons and the Gaboon and Ogowe districts. It is therefore necessary to adopt the name of *Simia* L. for the genus of the Chimpanzees, and the famous "Tschego" proves to be the veritable *Simia satyrus*. According to Palmer, on the other hand, we have the following generic terms for the Orang-Outan or Maias:—

Satyrus Lesson, 1799; *Pongo* Lacepède, 1799; *Pithecus* G. Cuvier, 1800; *Lophotus* G. Fischer, 1813; *Faunus* Oken, 1816; *Macrobates* Billberg, 1828; and *Brachiopithecus* Sénéchal, 1839. As *Satyrus* of Lesson and *Pongo* of Lacepède are of equal date, I think we must adopt, as the least confusing name, *Pongo* of Lacepède, and therefore the correct name of the Orang-Outans as a group is *Pongo pygmaeus* (Linn.).

Professor Matschie, in his article on the Chimpanzees, Sitz. Ges.

naturf. Fr. 1904, pp. 55–69, acknowledges seven species of the genus *Simia*. According to the view of the value of various animal forms which I take up, as a large proportion of these represent one another geographically, they ought to be treated only as subspecies. This diversity of opinion between Professor Matschie and myself is more apparent than real, for in many cases Professor Matschie regards what I call “species” as genera or subgenera, while he considers what I call “subspecies” to be species, thus only differing in the terms to apply to certain categories of individuals. According to our present state of knowledge of the Chimpanzees, there are two very well-defined groups, namely, the *Simia satyrus* group, with black or blackish-brown faces when adult, and the *Simia pygmæus* group, with pale faces both in the adult and young stages. From this it will be seen that I differ entirely in one point of nomenclature from Professor Matschie—namely, I hold that a specific name can be used for a species, even if previously used in a different sense, so long as the species first denoted by the name has since been placed in another genus. I therefore consider *Simia pygmæus* applicable to one of the races of Chimpanzee, because Linnaeus’s *Simia pygmæus* must now stand as *Pongo pygmæus*. In addition to the seven forms of *Simia* recognised by Matschie in his paper (Sitzungsber. Ges. nat. Fr. Berl. 1904, pp. 54–69), there are several more, among which is a pale-faced Chimpanzee which comes from some part of the French Congo, which I propose to name *Simia pygmæus raripilosus*, subsp. nov., distinguished from other forms of *Simia pygmæus* by the sparse, almost absent, beard, narrow protruding face, and very long limbs, largish ears, rounded forehead, and only partially divided hair on the head.

Professor Matschie’s paper gives the forms as follows:—

1. *SIMIA SATYRUS* L. Syst. Nat. i. p. 25 (1758). (Text-figs. 105, 106, 107, & 109, fig. 1, pp. 423, 424, 426.)

Synonyms: *Simia troglodytes* Gm., 1788; *Troglodytes niger* Geoffr., 1812; *Troglodytes koolo-kamba* Du Chaillu, 1861; *Troglodytes aubryi* Gratiolet & Alix, 1866; *Pseudanthropus fuliginosus* Schaufuss, 1875.

Distribution. Lower Guinea from Sanaga in the Camaroons to the Ogowé.

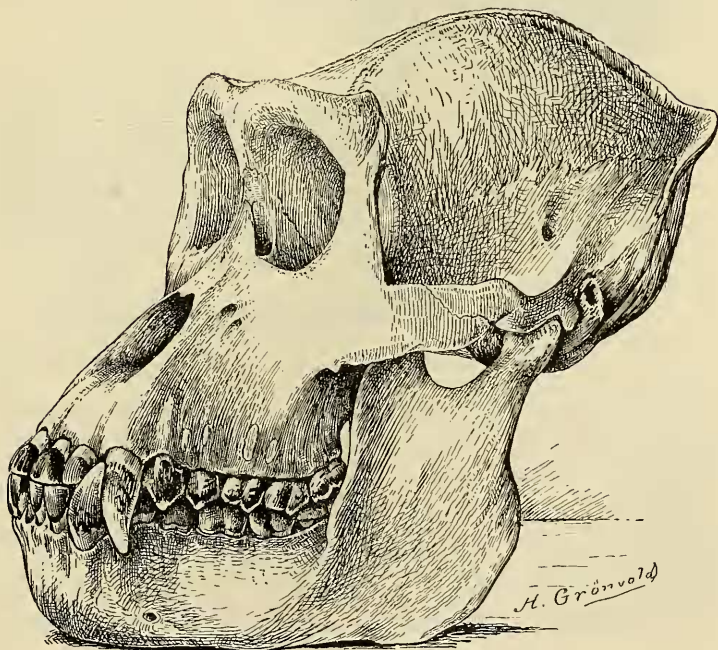
Distinctive characters. *External:* hair of head not parted in centre; hair on forehead falls out in adults, but not so far as level of ears. Ears medium size, 65 × 50 millimetres. A narrow beard of thick short hairs pointed downwards surrounds the face except chin, which is sparsely covered with dark grey hairs. Arms very long, exceeding 700 mm. Colour of face in the young leather-yellow, in adult animals blackish brown.

Cranial characters: facial portion of skull very narrow, much constricted behind the canine teeth; the greatest breadth of the skull is never more than 1 mm. greater at the canines than at the molars. The brain-case is an elongate egg-shape, measuring from the glabella to the protuberantia occipitalis in the ♂ ♂

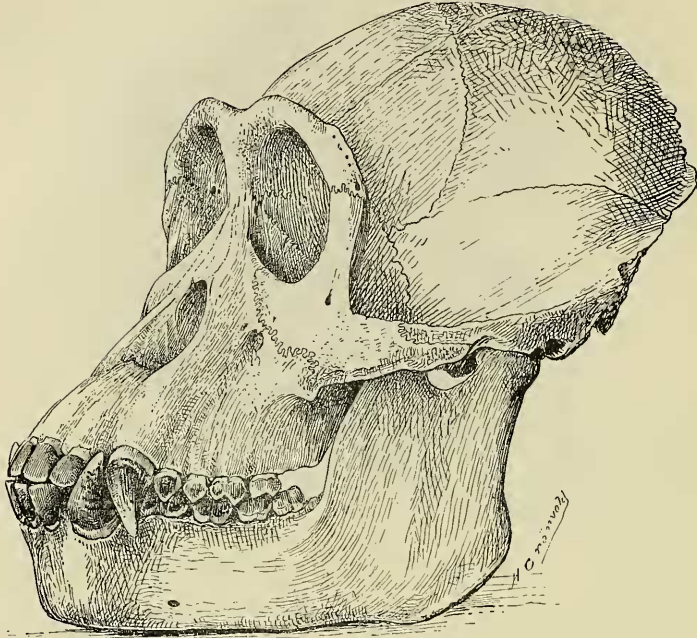
Text-fig. 105.

Head of *Simia satyrus* Linn. (From life.)

Text-fig. 106.

Skull of *Simia satyrus* Linn. (Fully adult.)

Text-fig. 107.

Skull of *Simia satyrus* Linn. (Fere adult.)

134–142 mm. and in the ♀♀ 122–130 mm. The thinnest place in the *zygomatic arch* is 5–9 mm. high (always over 7 mm. in old ♂♂).

2. *SIMIA CALVUS* (Du Chaillu), Proc. Boston Soc. Nat. Hist. vii. p. 296 (1861).

Distribution. Interior of Gaboon Region and Southern Camaroons.

Distinctive characters. *External:* hair of head not parted in centre, falls out when adult to behind base of ears; the ears are enormous, 80 × 53 mm. at least. *Beard* laterally thin and longer than in *S. satyrus*, and does not join under the chin. *Chin* sparsely covered with white hairs. *Length of arms* in adult animals 600 mm. *Colour of face* in adult animals brownish black; *eyes* light brown, in young animals wood-brown, *ears* yellowish.

Cranial characters: *facial portion of skull* apparently very wide, as it is expanded behind the *canines*. The greatest width at the *canines* is 5 mm. narrower than at the *molars*. The brain-case is round, the greatest length from the *glabella* to the *protuberantia occipitalis externa* is the same in ♂♂ and ♀♀, viz. 127–139 mm.

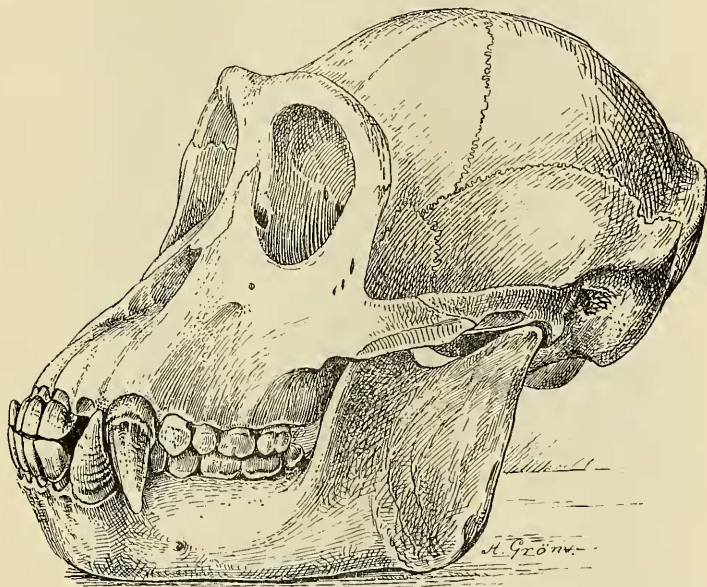
and over the arch of the forehead 141–160 mm. The breadth at the *canines* is 50–60 mm. in the ♂♂ and 54–68 mm. in the ♀♀. The thinnest place in the *zygomatic arch* is 7–10 mm. (always at least 9 mm. in old ♂♂).

3. *SIMIA VELLEROSUS* (Gray), P. Z. S. p. 181 (1862). (Plate XXIV. and Text-figs. 108 & 109, fig. 2.)

Distribution. Northern Camaroons and higher mountains further south.

Distinctive characters. *External:* ears very small, 50 × 45 mm. *Beard* very long and thick, completely surrounding face. *Arms* very long, at least 750 mm. in length; *face* brown (*W. R.*). (Colour of hair in fully adult old ♂♂ is yellowish grey.—*W. R.*)

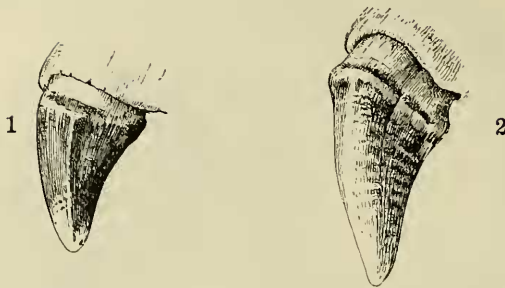
Text-fig. 108.



Skull of *Simia vellerosus* (Gray).

Cranial characters: *facial portion of skull* slender, flat in front of nostrils; breadth behind *canines* from 1 mm. less to 1 mm. more than between the molars. *Brain-case*, measured from the *glabella* to the *protuberantia occipitalis externa* much shorter in the ♂♂ than in the ♀♀, viz. 131–132 mm. and 137 mm. respectively; measured over the arch of the forehead 150–152 mm. and 160 mm. respectively. Breadth at *canines* in ♂♂ 62–63 mm., in ♀♀ 55 mm. The thinnest place in the *zygomatic arch* is 6–9 mm. high.

Text-fig. 109.

Left canine tooth of:—1. *Simia satyrus* Linn." " 2. *Simia vellerosus* (Gray).

4. *SIMIA SCHWEINFURTHI* Giglioli, Ann. Mus. Civ. Genova, iii. p. 135 (1872). (Text-fig. 110, p. 427.)

Synonyms: *Troglodytes marungensis* Noack, 1887.

Distribution. Niam Niam to South-eastern Soudan, and from Lake Tanganyika to Uganda Protectorate (and perhaps to Lake Chad and Wadai.—*W. R.*).

Distinctive characters. *External:* face, when young, pale, when adult, according to Matschie, dark. *Ears* very large (no exact measurements known). *Beard* enormously long and thick. *Chin* thickly covered with long white hairs. *Arms* very long indeed. *Hair* generally very long and thick.

Cranial characters: *facial portion of skull* extremely narrow, at the very outside only 55 mm. broad behind the *canines*, but not so wide even at the widest part of the *palate*. *Brain-case* almost round, of equal length in both sexes, measured from the *glabella* to the *protuberantia occipitalis externa* 128–133 mm., measured over the arch of the forehead 150–160 mm. Breadth between the *molars* 51–55 mm., between the *canines* 49–55 mm. The thinnest place in the *zygomatic arch* is 4–7 mm. high.

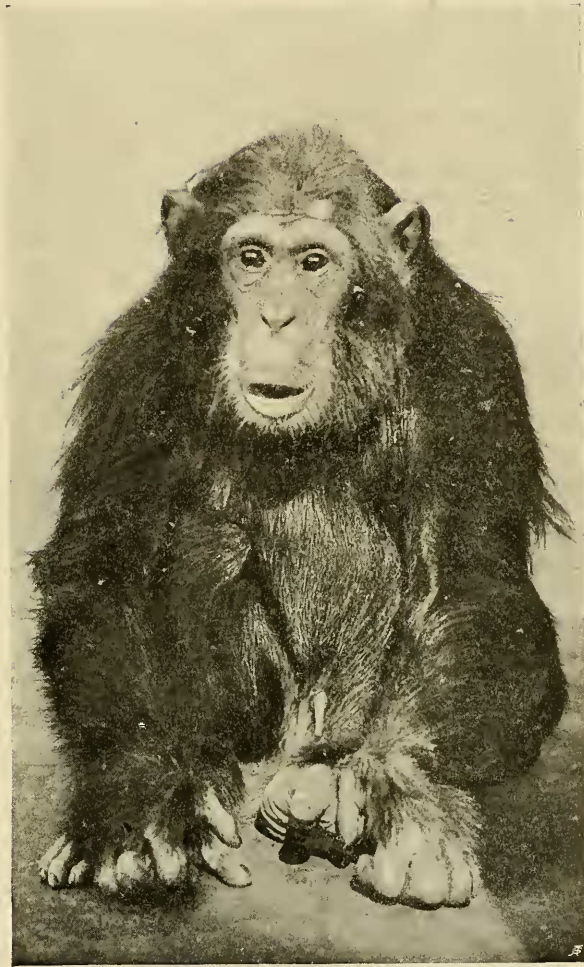
5. *SIMIA FUSCUS* (Mayer), Abh. und Ber. Mus. Dresd. No. 14, p. 7 (1894–1895).

Distribution. ? Probably between Liberia and Togoland.

Distinctive characters. *External:* *hair-whorl* on the top of the head, from which hair falls on all sides. *Ear* blunt, almost flat at the top. *Region of eye* darker than *nasal region*. *Beard* long and entire.

Cranial characters: *facial portion of skull* slender. About the same width behind the *canines* as at the *molars*, viz. 53 mm. *Brain-case* in a ♀ skull measures in length from the *glabella* to the *protuberantia occipitalis externa* 128 mm., and over the arch of forehead 155 mm. *Zygomatic arch* at its thinnest place is still 8.5 mm. high.

Text-fig. 110.



Simia satyrus schweinfurthi (Gigl). (From a photograph from life.)

6. *SIMIA LEUCOPRYMNUS* LESSON. 1831.

Synonyms: *Simia pygmaeus* Schreber, Säugthiere, Taf. 1 B (1796).

Distribution. Probably Sierra Leone and Western Liberia.

Distinctive characters. *External:* hair of head parted in the centre, very thin on the strongly-arched forehead. *Ears* very large and rounded at the top. *Region of the eyes* as pale as rest

of face. *Chin* sparsely clothed with brown hairs. *Beard* short and thick and surrounding chin.

Cranial characters: *brain-case* flat; *occipital region* flat and much lengthened; *facial portion of skull* slender, not expanded at the *molars*.

7. SIMIA CHIMPANSE (Mayer) Arch. Naturg. xxii. (i.) p. 282 (1856).

Distribution. Gambia and Senegambia.

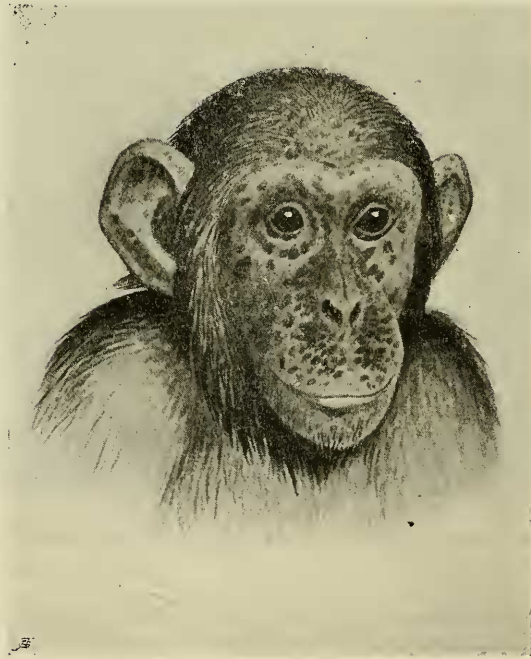
Distinctive characters. *External*: *hair of head* parted in centre; *ears* large; *beard* laterally long, standing out from the face; *chin* free and clothed with white hairs.

To these forms I must add the following:—

SIMIA RARIPILOSUS Rothsch. *antea*, p. 422. (Text-fig. 111.)

Distribution. Probably some part of the interior of French Congo.

Text-fig. 111.



Head of *Simia pygmaeus raripilosus* Rothsch. (From life.)

Distinctive characters. *External*: *hair of head* not or partly

parted in centre; *hair* very sparse all over body; *arms* very long; *beard* almost absent.

Since writing the paper (Sitzungsber. Ges. naturf. Fr. Berl. 1904, pp. 55-59) Professor Matschie has examined over one hundred Chimpanzees, including the types of *Trog. aubryi*, *Tr. niger*, *Tr. calvus*, *Tr. koolookamba*, *Tr. tschego*, *Tr. troglodytes*, *Tr. fuliginosus*, *Tr. marungensis*, and *Tr. leucoprymnus*, besides many skulls, and in consequence has found much in the above-quoted article which requires altering. With such of those alterations as he has communicated to me I quite agree. The conclusions both he and I have come to make it clear that there are at least four distinct species of Chimpanzee (*Simia*) all living side by side throughout the greater part of their range, while I, personally, maintain there are five such species. The five species, according to the geographical and physical position of various portions of their range, again fall into a number of well-developed subspecies = geographical races; and we find that at present we have twelve named races belonging to five species; while Professor Matschie, in a forthcoming paper, proposes to describe, besides others, two new forms from Liberia, two from Central Congo, and three from the Uelle region. At present I only propose to deal with the twelve named forms of which the following are the Key and Synopsis, which latter, I hope, will be understood by aid of the former; but the notes following them will no doubt clear up much.

KEY.

- | | | | |
|---|---|---|--------------------------------------|
| 1 | { | Face of adult black or blackish brown..... | 2 |
| | | Face of adult pale | 3 |
| | { | Hair long, harsh and black; arcus superciliaris strongly developed..... | <i>Simia satyrus marungensis.</i> |
| | | Hair long and soft, generally yellowish grey in very old animals. Last lower molar very small; facial portion of skull very short; canines very large. | <i>Simia vellerosus.</i> |
| | | Hair long and soft, sooty-brown to black. | <i>Simia vellerosus fuliginosus.</i> |
| 2 | { | Hair and beard very long, limbs long; head narrow and very high, face olive-brown. | <i>Simia satyrus schweinfurthii.</i> |
| | | Hair black, short, and harsh; head round, ears enormous. | <i>Simia koolookamba.</i> |
| | | Hair short, harsh; head long; arcus superciliaris strongly developed. Last lower molar showing four very ill-defined tubercles, facial portion of skull long, canines small | <i>Simia satyrus.</i> |
| | | Hair black and short, ears very small; face very prognathous; last lower molar with five large tubercles as in <i>Gorilla</i> ; eyes very wide apart ... | <i>Simia aubryi.</i> |

- 3 { Region round eyes dark..... *Simia pygmæus chimpanse*.
 Region round eyes pale, like rest of face 4
- { Beard short, sparse, almost absent; hair short, thin,
 and black; face pale, blotched with dark tan.
Simia pygmæus raripilosus.
- 4 { Face pale flesh-colour, beard thick and long; hair
 long, thin, and black; head round, ears set on low.
Simia pygmæus.
- { Hair, even when young, mostly reddish; hair on chin
 whitish; hair of head spreading from central whorl,
 beard entire and long *Simia pygmæus fuscus*
- { Hair on head sparse, ears large, chin-hairs brownish.
Simia pygmæus leucopymnus.

This Key is as close as I have been able to work, but when some of the remaining subspecies are described it must be revised.

SYNOPSIS.

1. *Simia vellerosus* (Gray). Camaroons.
- 1a. *Simia vellerosus fuliginosus* (Schaufuss). Congo region.
2. *Simia satyrus* (Linn.). Camaroons and Gaboon.
- 2a. *Simia satyrus marungensis* (Noack). Central Congo. (Text-fig. 112, p. 431.)
- 2b. *Simia satyrus schweinfurthi* (Giglioli). Soudan and Uganda.
3. *Simia koolookamba* (Du Chaillu). Camaroons and Gaboon.
4. *Simia aubryi* (Gratiolet & Alix). Camaroons and Gaboon.
5. *Simia pygmæus* Schreber. Congo. (Text-fig. 113, p. 432.)
- 5a. *Simia pygmæus fuscus* (Mayer). Gold Coast?
- 5b. *Simia pygmæus leucopymnus* (Lesson). Sierra Leone and S. Liberia.
- 5c. *Simia pygmæus chimpanse* Matschie. Gambia. (Text-fig. 114, p. 433.)
- 5d. *Simia pygmæus raripilosus* Rothschild. French Congo.

In Professor Matschie's previously cited paper, first of all, under the head of *Simia satyrus* Linn. he has confused four species, viz. *S. satyrus*, *S. koolookamba*, *S. aubryi*, and *S. vellerosus*, in fact all the black-faced species. As now ascertained, Linnaeus's species must stand as *SIMIA SATYRUS* Linn. Syst. Nat. i. 25 (1758).

Synonyms: *Simia troglodytes* Gm., 1788; *Troglodytes niger* Geoffr., 1812; *Troglodytes tschego* Duvernoy, 1855; and *Troglodytes calvus* Du Chaillu, 1861.

Troglodytes aubryi Gratiolet & Alix, 1866, must stand as a good species as *SIMIA AUBRYI* (Grat. & Alix).

Troglodytes koolookamba Du Chaillu must stand as a distinct species as *SIMIA KOOLOOKAMBA* (Du Chaillu). (Text-fig. 115, p. 434.)

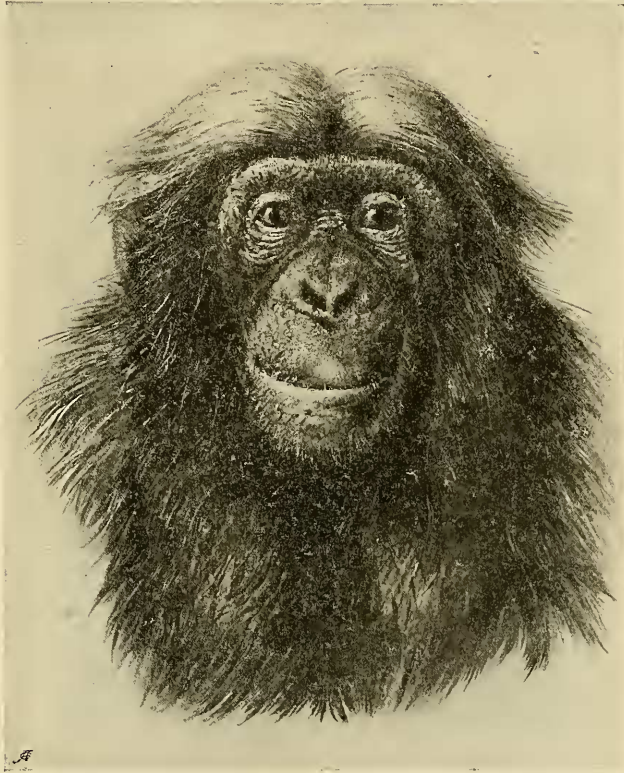
Simia calvus Matschie (*nec* Du Chaillu) is the same as *Simia vellerosus* (Gray).

Simia vellerosus Matschie (*nec* Gray) is a mixture of *S. vellerosus* and *S. aubryi*.

Pseudanthropus fuliginosus Schaufnss is the Loanga subspecies of Gray's *Troglodytes vellerosus*, and will have to stand as *SIMIA VELLEROSUS FULIGINOSUS* (Schauf.).

Simia pygmaeus Schreber is not a synonym of *T. leucoprymnus* Lesson, as Professor Matschie has placed it, but is a distinct subspecies.

Text-fig. 112.

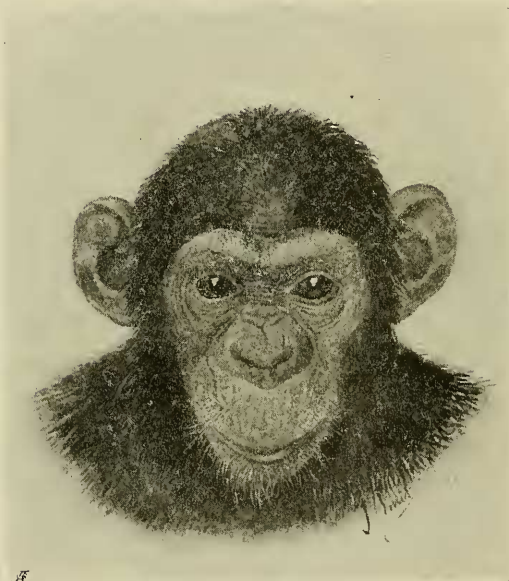


Head of *Simia satyrus marungensis* (Noack). (From life.)

In the preceding pages I have endeavoured to compress into concise limits all that could be ascertained of the natural divisions and classification of the African anthropoid apes in the light of modern study and investigations. We now come to the Asiatic anthropoids; and if the Gorillas and Chimpanzees offer serious difficulties to the student, the Asiatic Orangs present difficulties ten times worse. I do not for a moment wish to assert that my conclusions are even as closely correct as in the Gorillas and

Chimpanzees, but seeing that we are faced by two distinct problems, when trying to classify the large red apes of Borneo and Sumatra, I think the present arrangement clears up a few difficulties and is an advance on former classifications. The first of the above problems connected with the Orangs is, that throughout their entire range two forms are found living side by side which are extremely different in appearance. In one of these the adult males are very large and have huge callosities on each side of the face, in the other the adult males are smaller and have no sign of any face- (*i. e.* cheek-) callosities. There is considerable diversity

Text-fig. 113.



Head of *Simia pygmaeus* Schreber. (From life.)

of opinion as to what is the correct position to assign to these two forms. Professor Matschie not only considers them to be distinct species, but even goes so far as to say they are distinct genera. I cannot at all agree to even considering them distinct species, but feel sure they are only dimorphic phases of one species.

The second problem presented by the Orang-Outans is whether there are a number of different species or whether there is only one variable species consisting of a number of geographical races or subspecies.

Professor Matschie inclines to the former view, while Dr. Selenka

takes the latter. I am convinced that this is the right view to take, and that many who side with Professor Matschie go too far in splitting up the forms of Orang. Dr. Selenka gives a very plausible and, I believe, well justified explanation for the existence of a number of local races in Borneo, viz., that the Orang-Outans cannot swim and can only climb mountains, when bare of trees, with difficulty; and as Borneo is intersected in all directions by broad rivers and high mountain-ranges, the Orangs in the various districts are almost as much isolated as if confined to separate islands.

Text-fig. 114.



Head of *Simia pygmaeus chimpanse* Matschie. (From life.)

Dr. Selenka separates 8 races of Orangs from Borneo and Sumatra, 4 with cheek-callosities and 4 without, so that, as I consider these two forms dimorphic phases, he distinguishes actually 4 distinct subspecies. Professor Matschie distinguishes 14 races, or, as he calls them, species, from Borneo and Sumatra,

or according to my view 7 distinct subspecies, each being dimorphic. His 3 additional subspecies are Bornean, and will be described in his forthcoming paper. As I cannot find in previous writings on the Orangs any descriptions which can be employed to denote other forms than the 4 dimorphic subspecies recognised by Dr. Selenka, I shall only deal with them, and leave Professor Matschie to work out any forms, in addition to these 4, which may exist in collections.

Text-fig. 115.



Head of *Simia koolookamba* (Du Chaillu). (Very young animal.)
(From life.)

Dr. Selenka, in the Sitzungsber. Akad. Wissensch. Berlin, xvi. pp. 381-392, gives distinctive characters of his 8 races as follows:—

BORNEO.

A. ♂♂ with Cheek-callosities.

1. *Pithecus satyrus landakkensis*.—Hair deep reddish brown, rarely brownish yellow. Skull mikrencephalic and micrognathous; cubic capacity, ♂♂ 420-450 cb. cm., ♀♀ 350-390 cb. cm. 4th molar rarely present.

2. *Pithecus satyrus batangtuensis*.—Hair deep brown. Skull mikrencephalic and micrognathous; cubic capacity 400–437 cb. cm. in ♂♂, 350–420 cb. cm. in ♀♀.
3. *P. satyrus dadappensis*.—Hair dark reddish brown. Skull megalencephalic and macrognathous; cubic capacity in ♂♂ 470–534 cb. cm., in ♀♀ 360–490 cb. cm.

B. ♂♂ without Cheek-callosities.

4. *P. satyrus genepaiensis*.—Hair deep reddish brown. Skull megalencephalic and macrognathous; cubic capacity in ♂♂ 390–435 cb. cm., in ♀♀ 360–410 cb. cm.
5. *P. satyrus skalauensis*.—Hair dark brownish red. Skull megalencephalic and brachygnathous; cubic capacity in ♂♂ 440–500 cb. cm., in ♀♀ 330–440 cb. cm.
6. *P. satyrus tuakensis*.—Hair stiff and coarse, rusty yellow to rust-red; skin reddish; shape clumsy and expression coarse. Skull mikrencephalic and macrognathous. Malays call this form “Maias kesar,” the “Coarse Orang,” and this is the form almost always seen alive in Europe as it is hardier and travels better.

SUMATRA.

7. *Pithecus sumatranus deliensis*.—Hair brownish to foxy red. Face black. Old males with large cheek-callosities, mesencephalic; cubic capacity in ♂♂ 445–485 cb. cm., in ♀ 340 cb. cm.
8. *P. sumatranus abongensis*.—Hair deep brown. Old males without cheek-callosities.

Except that Dr. Selenka entirely overlooked the fact that of the 8 forms recognised by him 5 had already been named and described, and that therefore only 3 of his names can stand, he was most accurate in his distinctions, which is not to be wondered at as he has over 300 skulls, about 100 complete skeletons, about 100 skins, and many embryos and young for comparison, an amount of material obtainable nowhere else in the world. In addition to these 8 forms Dr. Selenka described, tentatively, a ninth form without cheek-callosities as *P. satyrus rantaiensis*, which will probably prove to be one of Prof. Matschie's 3 additional species. The following table will explain the relationship of the various subspecies of Orang-Outan, so far as the present state of our knowledge enables me to judge.

The table, however, requires considerable explanation, for although I have employed similar nomenclature in my entomological articles, it is something quite new when employed in connection with Vertebrata. As I have shown previously in this paper, the first name applied to the Orang-Outan after 1758, our nomenclatorial starting-point, was *Simia pygmaeus* of Linnæus,

1763, and therefore, as the first acceptable generic name is *Pongo*, we find that the name for the Orangs as a group is *Pongo pygmaeus* (Linn.). Now this animal of Linnæus's is clearly shown by the description and Edwards's figure to have been a form *without* cheek-callosities, while we find in Schreber an ape, entitled *Simia agrius*, which equally clearly is a young specimen of a form *with* cheek-callosities. But of neither of these forms or phases have we any data which can satisfactorily determine to what subspecies they belong; therefore the names of these two phases can only, I think, with any propriety, be applied to the Landak-Sarawak form, and we arrive at the following combination:—

Pongo pygmaeus, { form. dimorph. *pygmaeus* (without callosities).
 { form. dimorph. *agrius* (with callosities).

But because this three-legged appellation applies only to one race of Orang-Outans, it is necessary to give names not only to each of the three other subspecies as a whole, but also to each dimorphic phase of each subspecies. Now Dr. Selenka called the phase with cheek-callosities from the Landak region *Pithecus satyrus landakkensis*, while he named the phase without cheek-callosities *P. satyrus tuakensis*; to these, however, I apply the names of *Simia pygmaeus* of Linnæus and *S. agrius* of Schreber, so we get as the first Bornean subspecies of *Pongo pygmaeus*:—

Pongo pygmaeus { form. dimorph. *agrius* (with cheek-callosities).
 { (Text-fig. 116, p. 437.)
 pygmaeus, { form. dimorph. *pygmaeus* (without cheek-callosities). (Text-fig. 117, p. 438.)

The phase with cheek-callosities from the Batangtu region was named *Pithecus satyrus batangtuensis* by Dr. Selenka, while he named the phase without cheek-callosities *P. satyrus skalauensis*; of these, one had, however, been described previously under the name of *Simia wurmbii* E. Geoff.; therefore the second Bornean subspecies must stand as follows:—

Pongo pygmaeus { form. dimorph. *wurmbii* (with cheek-callosities).
 { form. dimorph. *skalauensis* (without cheek-callosities).
 wurmbii, {

Dr. Selenka has called the phase with cheek-callosities from the Dadap-Genepai region *Pithecus satyrus dadappensis*, while he gave the name *P. satyrus genepaiensis* to the phase without cheek-callosities from the same region; therefore the third Bornean subspecies must stand thus:—

Pongo pygmaeus { form. dimorph. *dadappensis* (with cheek-callosities).
 { form. dimorph. *genepaiensis* (without cheek-callosities).
 dadappensis, {

The Sumatran Orang with cheek-callosities had the name of

Pithecus sumatranus deliensis bestowed upon it by Dr. Selenka, while he called the phase without the callosities *P. sumatranus obangensis*. Unfortunately, however, both these forms had had previous names given to them, viz. *Simia abelii* by Clarke and

Text-fig. 116.

Skull of *Pongo pygmaeus* forma *agrius* (Schreber).

Simia bicolor by Isidore Geoffroy respectively; therefore the fourth and Sumatran subspecies of *Pongo pygmaeus* stands as follows:—

Pongo pygmaeus { form. dimorph. *abelii* (with cheek-callosities).
bicolor, { form. dimorph. *bicolor* (without cheek-callosities).

After these explanations, I think the following synoptical table of the divisions and subdivisions of the Orang-Outan, *Pongo*

pygmæus (Linn.), will give succinctly the true nomenclature and relationship of the different forms.

Text-fig. 117.

Skull of *Pongo pygmæus* forma *pygmæus* (Linn.).*Entire Species.*

PONGO PYGMÆUS (Linn.).

Bornean Subspecies.

1. Landak Subspecies.

<i>Pongo pygmæus</i>	{	form. dimorph. <i>agrius</i> (Schreber).
<i>pygmæus</i> ,		form. dimorph. <i>pygmæus</i> (Linn.).

2. Batangtu Subspecies.

<i>Pongo pygmæus</i>	{	form. dimorph. <i>wurmbii</i> (E. Geoff.).
<i>wurmbii</i> ,		form. dimorph. <i>skalauensis</i> (Selenka).

3. Dadap-Genepai Subspecies.

<i>Pongo pygmæus</i>	{	form. dimorph. <i>dadappensis</i> (Selenka).
<i>dadappensis</i> ,		form. dimorph. <i>genepaiensis</i> (Selenka).

Sumatran Subspecies.

Pongo pygmaeus } form. dimorph. *abelii* (Clarke).
bicolor, } form. dimorph. *bicolor* (J. Geoff.).

I will now briefly summarise the results arrived at in this paper. I acknowledge, tentatively, 2 species of *Gorilla*, one with 3 subspecies; but eventually, with more material available, I think we shall find only one species, *Gorilla gorilla*, with 4 or more local subspecies. I have acknowledged 5 species of Chimpanzee, for which I employ the generic name *Simia*, as the oldest name given to a Chimpanzee was Linnæus's *Simia satyrus* for the Tsehego. I characterise 3 local races of *Simia satyrus*, 2 of *Simia vellerosus*, and 5 of *Simia pygmaeus*, while as yet only one race each of *Simia aubryi* and *Simia koolookamba* are known to me. Of Orang-Outans *Pongo*, I can recognise only one very variable species, which can be divided up into a number of subspecies. I have characterised 4 such, each with a dimorphic phase, but our knowledge is so imperfect that I only wish to accept these 3 Bornean and 1 Sumatran races for the present, until a fresh lot of material arrives.

Professor Matschie, as a result of his last journey, is preparing a paper describing a much larger number of forms of Orang and Chimpanzee than I have dealt with in this paper, dividing them also into several genera; but, while fully awake to the possibility of a large number of additional forms existing, I have noticed here only such forms as are known to me at the time of writing.

In conclusion, I only wish to explain the standpoint I have taken up in writing this paper. My first contention relates purely to nomenclature. Hitherto, at least in Great Britain, zoologists have been divided as to the date to take as the starting-point for zoological nomenclature: ornithologists and entomologists taking Linnæus's XII. edition of the 'Systema Naturæ' of 1766, while mammalogists take the X. edition of 1758. Also it has been customary for different zoologists to admit or disallow various changes in nomenclature. This variety of opinions has led to much confusion, and I therefore consider, as all writers on mammals of recent years and also the bulk of German and American zoologists, that the only way to obtain a uniform and final nomenclature is to adopt the tenth edition of Linnæus, and adhere absolutely to the strictest law of priority in nomenclature, however intrinsically absurd or unsuitable a name may be.

I now come to my other contention. Much discussion has taken and is taking place as to the naming or not of local (*i.e.* geographical) races. The zoologists of the old school maintain that such races should not be named, and any variation of less than specific value should be ignored as regards the nomenclatorial point. The younger generation, however, declare that any distinction, however slight, ought to be signified by a name so long as it has geographical foundation. I am of the latter opinion. I am in favour of this method for many reasons; one of which is, that by

distinguishing all local races by a name we prevent the creation of useless synonyms by forcing the inexperienced student to study all of these before describing what appears to him a new species.

As to the method of denoting by names geographical races, there are many views, but I consider that much the most practical method is to add a third name to the two already possessed by the species. This method is no novelty, for it has been done since the time of Linnæus, the third name being coupled to the first two by the term "*varietas*." So long as "*varietas*" was only used to express a "geographical race" it answered very well, but soon it was also applied to individual variations and confusion reigned supreme. I consider, therefore, that it is important to abolish "*varietas*" from our nomenclature entirely, as it has so often been wrongly used, and to substitute the term "*subspecies*" for "*geographical races*" and the term "*abberatio*" for "*individual variations*." Thus the South Camaroons Gorilla would be called

Gorilla gorilla subspecies matschiei;

but this interpolation of the word subspecies makes the name very long and cumbersome, so that I and most Continental and American zoologists have agreed to leave out the term "subspecies" and to write the names of geographical races thus: *Gorilla gorilla matschiei*. It is seen, therefore, that this so-called innovation is no innovation at all, but simply the using of the long-established formula for local races in an abbreviated and more convenient form—*i. e.*, instead of writing *Gorilla gorilla varietas matschiei*, we simply leave out the word "*VARIETAS*" or its equivalent.

The chief reason, however, why I hold that geographical races ought to be named and diagnosed is that it facilitates so much the study of geographical distribution. Also the habits of local races are often widely different, and it prevents errors if differences in habits can be correlated to outward differences.

Some zoologists maintain that it is a mistake to describe "*subspecies*," as we cannot tell where individual variation ends and geographical variation begins.

This holds good only in the case of Reptiles, Fish, Mollusca, and most probably in the majority of the lower invertebrates; but in Insects, Birds, and Mammals it is practically always possible to tell whether a difference is racial or individual, and, I believe, even in the previously mentioned groups it will eventually be possible to define geographical races.

EXPLANATION OF PLATE XXIV.

Simia vellerosus (Gray) (very old male) : p. 425.